



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/803,694	03/18/2004	Sanjay Gurbasappa Charati	135140-2	7808

23413 7590 06/20/2005

CANTOR COLBURN, LLP
55 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002

EXAMINER

BOYKIN, TERRESSA M

ART UNIT	PAPER NUMBER
----------	--------------

1711

DATE MAILED: 06/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/803,694	Applicant(s) CHARATI ET AL.	
	Examiner Terressa M. Boykin	Art Unit 1711	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 March 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 13-14, 17, 19-24, 33-36, 38-40 is/are rejected.
- 7) ☐ Claim(s) 5, 6 - 9, 10, 11, 12, 15, 16, 18, 25-32, 37 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) .
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>2-22-05</u> . | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 1711

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-4, 13-14, 17, 19-24, 33-36, 38-40 are rejected under 35 U.S.C. 102(b) as being anticipated by **USPub 20040009346**; **USPub 20030216502**; **USPub 20040028859**

USPub 20040009346 discloses a transparent conductive polymer composite which contains the carbon nano-particle. For a polymer composite with the transparency, the size of particle added or the size of aggregators of the particles must be less than 1/2 of the shortest wavelength of a visible ray. Since the carbon nano-particle of the present invention has the mean particle diameter of 1 through 50 nm, preferably, 1 through 10 nm, more preferably 1 through 5 nm and can be easily dispersed in a polymer resin, it meets the requirements for maintaining the transparency. Therefore, by blending the carbon nano-particle of the present invention into a transparent polymer resin, it is possible to make a polymer composite with the transparency while maintaining the electric

Art Unit: 1711

conductivity.

Examples of the transparent polymer resins to be used in the present invention include polyethylene, polypropylene, polystyrene, polycarbonate, polyethylene terephthalate, polymethyl methacrylate, etc. Of them, the polycarbonate can be preferably used in view of strength and anti-scratch property. Note applicants' claim 19 regarding ethylenically unsaturated monomers.

With regard to claim 13 note that the reference discloses monomers and catalysts to be used in the method according to the present invention are not particularly limited, if they can be used in the emulsion polymerization at a low temperature. Examples of the monomers include styrene, butadiene, pyrrole, aniline, thiophene, methyl methacrylate, poly(3,4-ethylenedioxythiophene) (PEDOT), etc.

USPub 20030216502 discloses a composite comprising a weight fraction of single-wall carbon nanotubes and at least one polar polymer wherein the composite has an electrical conductivity of at least about 35 S/cm multiplied by the weight fraction of the nanotubes in the composite. The composite of claim 1 wherein the polar polymer is selected from the group consisting of polycarbonate, poly(acrylic acid), poly(methacrylic acid), polyoxide, polysulfide, polysulfone, polyamide, polyester, polyurethane, polyimide, poly(vinyl acetate), poly(vinyl alcohol), poly(vinyl chloride), poly(vinyl pyridine), poly(vinyl pyrrolidone), copolymers thereof, and combinations thereof. (Note applicants' claims 14, 17 regarding polyimide, polyamide etc.)

The reference further discloses a method for forming a composite comprising a

Art Unit: 1711

weight fraction of single-wall carbon nanotubes and at least one polar polymer comprising: a) dispersing a weight fraction of single-wall carbon nanotubes and at least one polar polymer in a solvent to make a nanotube-polymer suspension; and b) removing the solvent from the suspension to form a nanotube-polymer composite wherein the polymer composite has an electrical conductivity of at least about 35 S/cm multiplied by the weight fraction of the nanotubes in the composite.

USPub 20040028859 discloses a coating composition having outstanding electrically conductive and electromagnetic radiation absorptive properties with an emulsion polymer binder. The binder is a blend of a first emulsion containing a conjugated diene as monomer or comonomer, and a second emulsion containing

an acrylic, aliphatic or aromatic polyurethane, polyester urethane, polyester, epoxy, polyamide, polyimide, vinyl, fluoropolymer, or silicone polymer. Note applicants' claim 14, 17 regarding polyimides, polyamides etc.

The carbon nanotube particles can be a carbon nanotube with a single wall or a multi-wall structure. They may be a hollow structure or a bamboo structure. The diameter of the carbon nanotubes can range from about 10 to about 60 nanometers. The length of the carbon nanotubes can range from less than 1 micron to about 40 microns.

Note claims 1, 14, 25, 27, and 28 of the reference.

The reference further relates to a coated substrate. The substrate is typically paper, cloth, plastics such as polycarbonate, acrylic, nylon, polyester, rubber, steel, composite materials or fiber reinforced plastics, such as fiberglass and the like. The substrate may be a plastic component of an electronic device. The substrate may also be a pipe, a rubber mat, or the like or even a room, building,

Art Unit: 1711

temporary facility, or a vehicle such as an aircraft, tank or ship. The second emulsion is an acrylic, aliphatic or aromatic polyurethane, polyester urethane, polyester, epoxy, polyamide, polyimide, vinyl, modified acrylic, fluoropolymers, or silicone polymer. Note applicants' claim 14.

The blending of the second polymer emulsion with the first polymer emulsion results in several desirable properties and improvements in the characteristics of the first emulsion. The second emulsion enhances the chemical resistance of the first emulsion, improves its hardness while retaining its flexibility, enhances its adhesion properties to create a stronger bond with a substrate, and results in better flow properties. The use of the second emulsion may also improve the exterior durability of the first emulsion as well as its abrasion resistance. In cases where an epoxy, urethane, fluoropolymer, or silicone polymers are used, an increased level of performance is found for areas of adverse conditions such as sea water environments, harsh chemical environments and areas of high wear and corrosion.

With regard to applicants' claim 13 note that the reference discloses that the first emulsion preferably includes an ethylenically unsaturated comonomer which is typically an unsaturated nitrile such as acrylonitrile, a monovinyl aromatic hydrocarbon such as styrene, or vinylpyridine.

With regard to articles made therefrom, note claim 28 of the reference.

With regard to claims 2 and 3, as well as claim 22, any properties or characteristics inherent in the prior art, e.g. the electrical bulk volume resistivity or the electrical surface resistivity...., although unobserved or detected by the reference, would still anticipate the claimed invention. Note *In re Swinehart*, 169 USPQ 226. "It is elementary that the mere recitation of a newly

Art Unit: 1711

discovered...property, inherently possessed by things in the prior art, does not cause claim drawn to those things to distinguish over the prior art". Since the disclosed characteristics or parameters above are expressed differently and thus may be distinct from those claimed, it is incumbent upon applicant(s) to establish that they are in fact different and whether such difference is unobvious.

Thus in view of the above, there appears to be no significant difference between the references and that which is claimed by applicant(s). Any differences not specifically mentioned appear to be conventional. Consequently, the claimed invention cannot be deemed as novel and accordingly is unpatentable.

Objected Claims

Claims 5, 6 - 9, 10, 11, 12, 15, 16, 18, 25-32, 37 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Correspondence

Please note that the cited U.S. patents and patent application publications are available for download via the Office's PAIR. As an alternate source, all U.S. patents and patent application publications are available on the USPTO web site (www.uspto.gov), from the Office of Public Records and from commercial sources. Applicants may be referred to the Electronic Business Center (EBC) at <http://www.uspto.gov/ebc/index.html> or 1-866-217-9197.

Art Unit: 1711

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Terressa Boykin whose telephone number is 571 272-1069. The examiner can normally be reached on Monday through Friday from 6:30am to 3:00pm.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. The general information number for listings of personnel is (**571-272-1700**).

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

tmb

A handwritten signature in black ink that reads "Terressa Boykin". The signature is written in a cursive, flowing style.

Examiner Terressa Boykin
Primary Examiner
Art Unit 1711